Nevada Air National Guard Environmental Restoration Program Site Closures

The Defense Environmental Restoration Program was established in 1984 to promote and coordinate efforts for the evaluation and cleanup of contamination at Department of Defense installations. On 23 January 1987, Presidential Executive Order 12580 was issued and assigned the responsibility to the Secretary of Defense for carrying out the Defense Environmental Restoration Program within the overall framework of the Superfund Amendments and Reauthorization Act and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The Environmental Restoration Program (ERP) was established under the Defense Environmental Restoration Program to identify, investigate, and clean up contamination at installations. The ERP focuses on the cleanup of contamination associated with past Department of Defense activities to ensure that threats to public health are eliminated and to restore natural resources for future use.

The ERP is divided into the following seven phases:

- Preliminary Assessment
- Site Investigation
- Remedial Investigation
- Engineering Evaluation/Cost Analysis
- Feasibility Study
- Remedial Design
- Remedial Action

Currently, the Air National Guard is seeking closure of seven ERP sites at the Nevada Air National Guard base in Reno, Nevada. The following sections briefly describe the history of each site and the rationale for closure.

ERP Site 2

Site 2 is a former fire training area (FTA) located east of Building 1. The site is currently under parking area A2 of the aircraft parking apron. The FTA consisted of an unlined, slightly bermed, open earthen area with a depth of 12 to 18 inches. Jet fuel (JP-4), spent solvents, waste oils, and other flammable liquids were the primary materials burned during the training exercises. In addition, a water base was applied to the FTA prior to each burning exercise. It is estimated that 10 burns per year were conducted at this FTA and up to 150 gallons of flammable liquids were used per burn. Assuming that 70 percent of flammables were destroyed, up to 450 gallons per year may have remained either to evaporate or infiltrate the ground. Based on these estimates, up to 1,800 gallons of flammable liquids may have infiltrated the ground during the 4-year period this FTA was in use.

The ANG has selected No Further Action as the preferred alternative for Site 2 for the following reasons:

- All reported concentrations of organic analytes were less than soil cleanup levels for protection of groundwater and human health.
- The dissolved-phase impacts at Site 2 are limited at single montoring well (MW-08/08R). Except for single detections of TCE and 1,2-DCE in MW-08 in 1992 and 1993, all reported groundwater concentrations are less than cleanup levels for groundwater in this well.
- Dissolved MTBE has been historically detected in monitoring wells MW-08/-08R and MW-11; however, the source of the MTBE is believed to originate from an off-site, upgradient source and is not related to releases at Site 2.

In summary, No Further Action is recommended for this site because there appears to be no significant ongoing source of contamination and the site does not present a risk to human health or the environment. Additionally, concentrations of organic chemicals dissolved in groundwater have decreased below applicable cleanup levels.

ERP Site 3

Site 3 is a former FTA adjacent to the north gate of the NVANG Base. The FTA consisted of an unlined, slightly bermed, open earthen area with a oils, and other flammables were burned during fire training exercises. Training was generally done on a quarterly basis between 1964 and 1971, with multiple burns per exercise. During training exercises, a water base was generally applied to the FTA prior to each burn. However, one fire training exercise in 1971 involved 2,500 gallons of JP-4 fuel with no water base. An estimated 150 gallons of flammable liquids was used per burn. It is estimated that approximately 2,400 gallons of flammable liquids might have been used per year. Assuming 70 percent of the liquids were consumed, up to 720 gallons per year may have remained to either evaporate or infiltrate the ground. The preliminary assessment (PA) reported that up to 6,300 gallons may have infiltrated the ground during the 6 years this FTA was used.

The ANG has selected No Further Action as the preferred alternative for Site 3 for the following reasons:

- All reported concentrations of organic analytes in soil were less than soil cleanup levels for protection of groundwater and human health.
- The dissolved-phase impacts were limited to trace concentrations of toluene and phthalates detected in monitoring wells MW-21 and MW-22. In both wells, the compounds were detected during only one of the two monitoring events. All results were less than applicable cleanup levels.
- The ANG does not expect any change in the use of Site 3, or of the surrounding area, in the foreseeable future.

In summary, No Further Action is recommended for this site because there appears to be no significant ongoing source of contamination and the site does not present a risk to human health or the environment. Additionally, concentrations of organic chemicals dissolved in groundwater are below applicable cleanup levels.

ERP Site 4

IRP Site 4 is a former FTA located on land leased by the NVANG south of Building 88 and is currently covered by a paved roadway and landscaping. The FTA consisted of an unlined, slightly bermed, open earthen area used to burn jet fuel (JP-4), spent solvents, waste oils, and other flammables during fire training exercises. Burn training exercises were conducted one to two times per year over a 3-year period beginning in 1970. During training exercises, a water base was applied to the FTA prior to each burn. An estimated 150 gallons of flammable liquids was used per burn. It is estimated that 900 gallons of flammable liquids might have been used during the 4-year period the site was used as an FTA. Assuming 70 percent of the liquids were consumed, up to 270 gallons of liquids could have infiltrated the ground.

The ANG has selected No Further Action as the preferred alternative for Site 4 for the following reasons:

- Based on soil analytical data collected between 1992 and 1995, inorganic chemicals in soil were all within normal background ranges reported in the SI. Several organic chemicals (1,3-dichlorobenzene, 1,4-dichlorobenzene, and TPH) were detected at concentrations exceeding groundwater protection cleanup levels reported in the RI. However, dichlorobenzenes exceeded cleanup levels in only one sample (SB4-5-7.5). TPH exceeded the cleanup level for protection of groundwater (210 mg/kg) in five samples, but all concentrations were well below the human health cleanup levels. All other samples and all other analyte concentrations were less than applicable cleanup levels for soil.

- The dissolved-phase plume beneath Site 4 is localized in the immediate vicinity of MW-05 and appears to have decreased in size since site assessment began in 1992. All samples collected from MW-03 (upgradient of MW-05) between 1992 and 1995 were non-detect for all analytes. VOCs were not detected in MW-04 (cross-gradient of MW-05) and MW-28 (downgradient of MW-05) after 1996. Downgradient well MW-29 periodically contained detectable VOCs and SVOCs between 1995 and 2003; however, only MTBE (480 µg/L) and 1,2-dichlorobenzene (1 µg/L, well below the USEPA Region 9 MCL for this compound) were detected during the most recent sampling event (third quarter 2004). Benzene concentrations in MW-05 have shown an overall decrease since the initiation of groundwater monitoring.

- With the exception of benzene and MTBE, all VOCs in groundwater have been below cleanup levels since at least first quarter 1998. Although benzene periodically exceeded the cleanup level in MW-05 between 1998 and 2001, it has exceeded the cleanup goal (5 µg/L) only once since first quarter 2001 and was well below the cleanup level during the last sampling event conducted in third quarter 2004 (1.9 µg/L). Dissolved MTBE has been historically detected in monitoring well MW-05. However, the source of the MTBE is believed to originate from an off-site upgradient source and is not related to releases at Site 4.

- Based on the observation that concentration trends in MW-05 and MW-29 have been fairly stable since first quarter 2002, continued leaching of residual chemicals to groundwater does not appear significant. In addition, the site is now completely covered by a paved roadway and landscaping, effectively capping the site and minimizing the potential for continued leaching of source chemicals to groundwater. The arid climate at NVANG also minimizes the potential for these contaminants to migrate downward toward groundwater in the future.

- The ANG does not expect any change in the use of Site 4, or of the surrounding area, in the foreseeable future.

ERP Site 5

ERP Site 5 is a former FTA located approximately 100 feet northwest of Building 76 (Figure 2-2). The FTA consisted of an unlined, bermed, open earthen area. Jet fuel (JP-4), spent solvents, waste oils, and other flammable liquids were the primary materials burned during the training exercises. In addition, a water base was applied to the FTA prior to all burning exercises. It is estimated that 8 to 10 training exercises and burns were conducted each year between 1970 and 1977. Up to 1,500 gallons of flamable liquids may have been used per year. Assuming 70 percent of liquids released were consumed, 450 gallons per year may have remained to evaporate or infiltrate the ground. Based on these estimates, up to 3,200 gallons may have infiltrated the ground during the 8-year period the FTA was in use (ASG, 1989).

The ANG has selected No Further Action as the preferred alternative for Site 5 for the following reasons:

- Two organic chemicals (TPH and methylene chloride) were detected at concentrations in soil exceeding groundwater protection cleanup levels identified in the RI (ERM, 1996). However, cleanup levels were exceeded in only two samples, and impacted soil was removed during remedial excavation completed in 1997.

- The dissolved-phase plume formerly detected in MW-17/17R/17R2 is no longer present. MW-17R2 has been non-detect for all organic analytes (except MTBE) since 1998. As indicated in Section 5.6.3, dissolved MTBE in MW-17R2 is believed to originate from an off-site, upgradient source and is not related to releases at Site 5.

- The ANG does not expect any change in the use of Site 5, or of the surrounding area, in the foreseeable future.

In summary, No Further Action is recommended for this site because there appears to be no significant ongoing source of contamination and the site does not present a risk to human health or the environment. Additionally, concentrations of organic chemicals dissolved in groundwater are now below applicable cleanup levels.

ERP Site 12

ERP Site 12 is a former JP-4 spill area located on the concrete-paved, aircraft parking apron (Figure 2-2). The site is an open area located approximately 360 feet from the northeast corner of Building 9, and approximately 280 feet from the northeast corner of Building 12. The spill site consisted of an area of approximately 50 feet by 50 feet, which encompassed two of the 12- by 12-foot concrete slabs that make up the conrete-paved, aircraft parking apron. According to base personnel, an undocumented JP-4 spill occurred in the area in the 1970s and an estimated 40 gallons were released in 1986. During routine replacement of the concrete slabs, which is required when the slabs become cracked, base personnel discovered fuel odors and potential impact to soil beneath the concrete pavement.

Base personnel stated that four soil samples and one groundwater sample were collected at the location where the slabs were removed. Soil samples contained total petroleum hydrocarbons (TPH) up to 1,700 milligrams per kilogram (mg/kg). The groundwater sample was non-detect for volatile organic compounds (VOCs), but a sheen was observed on the groundwater surface during sample collection.

The ANG has selected No Further Action as the preferred alternative for Site 12 for the following reasons:

- Several organic chemicals (TPH and benzene) were detected at concentrations exceeding groundwater protection cleanup levels reported in the RI Report. However, benzene only slightly exceeded the cleanup level in one sample. TPH exceeded the cleanup level in four samples, but the reported concentrations in all samples were well below cleanup levels for protection of human health.

- Based on available groundwater data, there were no significant impacts to the shallow unconfined aquifer due to potential releases at Site 12. All detections of organic compounds were trace concentrations and were well below cleanup levels for groundwater.

- Based on the absence of impacts to shallow groundwater and the fact that the site has remained covered with concrete pavement since the suspected releases occurred, leaching of residual chemicals to groundwater does not appear significant. The arid climate at NVANG also minimizes the potential for these contaminants to migrate downward toward groundwater in the future.

- The ANG does not expect any change in the use of Site 12, or of the surrounding area, in the foreseeable future.

In summary, No Further Action is recommended for this site because there appears to be no significant ongoing source of contamination and the site does not present a risk to human health or the environment. Additionally, concentrations of organic chemicals dissolved in groundwater are now below applicable cleanup levels.

ERP Site 13

Site 13 was identified by base personnel as a former spill area and possible waste-oil disposal area.

The site includes two storm drains northeast of the Aerospace Ground Equipment (AGE) storage area, which is east of Building 2.

Both drains are connected to a larger storm drain east of Building 82. The first drain was used as a vehicle wash area between 1966 and 1986. The second drain received runoff from the AGE storage area for more than 20 years. In addition, small quantities of oil (5 gallons or less) were occasionally spilled onto the soil surrounding the second drain. No estimate is available to assess the volume of oil, grease, or hydraulic fluid that may have been washed into the drains. Base personnel indicated that the soil surrounding the second drain may have absorbed some waste. Both drains have not been used for waste disposal or vehicle washing since 1986.

The ANG has selected No Further Action as the preferred alternative for Site 13.

- Several organic chemicals (2-butanone, chloroform, PAHs, and TPH) were detected in subsurface soils at Site 13, but all reported concentrations are well below cleanup levels for protection of groundwater and human health.

- Based on available groundwater data, impacts to the shallow unconfined aquifer beneath Site 13 are negligible. Several organic compounds were detected during the SI (carbon disulfide, PAHs, and TPH), but all reported concentrations are less than groundwater cleanup levels.

In summary, No Further Action is recommended for this site because there appears to be no significant ongoing source of impact to groundwater and the site does not present a risk to human health or the environment. Additionally, concentrations of organic chemicals dissolved in groundwater are now below applicable cleanup levels.

ERP Site 14

ERP Site 14 was identified by base personnel as a former spill area adjacent to Building 82. Base personnel discovered the spill area in May 1991 when a 1,000-gallon oil/water separator exceeded its holding capacity and overflowed onto unprotected soil on the southeast corner of Building 82. The primary material that overflowed was identified as JP-4 fuel. Based on the 1,000 gallons realeased in May 1991 and the supected release of 25 to 50 gallons up to twice a year since 1975, it was estimated that up to 1,600 gallons of JP-4 may have reached the soil.

The ANG has selected No Further Action as the preferred alternative for Site 14 for the following reasons:

- Two organic chemicals (methylene chloride and TPH) were detected at concentrations exceeding groundwater protection cleanup levels reported in the RI (ERM, 1996). However, methylene chloride, which is a common laboratory solvent, exceeded cleanup levels in only one boring (BH23). TPH exceeded the cleanup level for protection of groundwater (210 mg/kg) in five samples, but only one sample slightly exceeded the the human health cleanup level (4,800 mg/kg; see RI Section 8). All other samples and all other analyte concentrations were less than applicable cleanup levels for soil.

- Available groundwater data indicate impact to groundwater beneath Site 14 is negligible. Except for very low concentrations of carbon disulfide, butylbenzyl phthalate, and di-n-butyl phthalate reported in SI groundwater samples, all VOC, SVOC and TPH analytes were non-detect.

- Based on the lack of groundwater impact, continued leaching of residual chemicals to groundwater does not appear significant. The arid climate at NVANG also minimizes the potential for residual contaminants to migrate downward toward groundwater in the future.

- The ANG does not expect any change in the use of Site 14, or of the surrounding area, in the foreseeable future.

In summary, No Further Action is recommended for this site because there appears to be no significant ongoing source of contamination and the site does not present a risk to human health or the environment. Additionally, concentrations of organic chemicals dissolved in groundwater are now below applicable cleanup levels.